GARDEN AND FOREST.

PUBLISHED WEEKLY BY

THE GARDEN AND FOREST PUBLISHING CO.

OFFICE: TRIBUNE BUILDING, NEW YORK.

Conducted by . . . . . Professor C. S. SARGENT.

ENTERED AS SECOND-CLASS MATTER AT THE POST-OFFICE AT NEW YORK, N. Y.

NEW YORK, WEDNESDAY, OCTOBER 3, 1894.

TABLE OF CONTENTS.

	PAGE.
EDITORIAL ARTICLES:—How to Save the Palisades	391
Forest Fires	392
Native Trees and Shrubs about Montreal, Canada.—II. *J. G. Jack.*	392
FOREIGN CORRESPONDENCE:—London Letter. *W. Watson.*	393
NEW OR LITTLE-KNOWN PLANTS:—Todea barbara. (With figure.) *D. P. Penhallow.*	394
PLANT NOTES	394
CULTURAL DEPARTMENT:—Michaelmas Daisies. *J. N. Gerard.*	396
Work for the Season. *W. H. Taplin.*	396
Begonias as Bedding Plants. *W. N. Craig.*	397
Pansy Seedlings. *G.*	397
Grapes Prematurely Falling. *G. Harold Powell.*	397
CORRESPONDENCE:—Vases for Cut Flowers. *Mrs. Schuyler Van Rensselaer.*	397
Magnolia glauca. *Thomas C. Porter.*	398
RECENT PUBLICATIONS:—The Forests of Siberia	399
NOTES	400
ILLUSTRATION:—A specimen plant of Todea barbara, Fig. 63	395

How to Save the Palisades.

NOT long ago Mr. Olmsted gave public expression to his regret that some irreverent quarrymen were blasting down the Palisades for paving-stones. This remarkable trap ridge, which rises like a perpendicular wall along the Hudson, helps to form a dignified entrance to the miles of noble scenery beyond it, through which the strong and silent river flows to the sea. Ever since the days of Hendrick Hudson it has been the wonder and admiration of all beholders, and it has seemed to be a part of the natural inheritance, not of this city only, but of the country and of the world. It is this frowning cliff, stained with rich color by the storms and sunshine of centuries, from which masses of a thousand tons are daily torn away by dynamite; and the raw surfaces which remain certainly make a painful impression on every one with any eye for beauty or sentiment of veneration. Vandalism is the word which occurs to every one when attempting to describe an act of such destruction, and yet the men who own the rock have bought and paid for it, and they undoubtedly have a right to blast it down and sell it. It may be that they have no feeling for the beauty they are destroying, but, whether they have or not, it is certainly unjust to consider them as willful public enemies. At all events, they are not unique sinners in this direction. Enterprises of the same kind are devastating beautiful scenes and places which are made sacred by historic memories in many other parts of this country. This lack of affection or reverence for spots which have a value for their natural beauty or human association is not confined to America. We read that the waterfall Lodore is for sale, and that Snowdon is in market. The paint-pot of the advertiser is defacing the landscape of Europe, and societies are formed to protect the rare and beautiful plants, which make the Alps interesting, from extermination by tourists. This destruction and defacement have been going on all the world over since civilization began, and if the people at large think that any of their rights are thus infringed upon, they must organize to assert them.

No doubt, it is difficult to draw the line between what belongs to the public and what belongs to the individual. The river is free, but the shores are private property, and every man within certain limits has a right to do with his own what he will, so long as he commits no nuisance. It has been urged, that if the owner of a factory is indictable when its stenches offend his neighbor's nostrils, that the quarryman ought to be dealt with by the same rule when he offends the eye and wounds the sentiment of the whole community. We remember a bank of Hemlocks which had been the pride of a town ever since the country was settled, and which had delighted every one who passed by it for two hundred years, and it was cut away simply because a new owner wanted to "clear things up," and the logs were left to rot where they fell. In cases like this the people can only suffer in silence. Of course, no law can be framed to suit every case, and the compromise which it seems necessary for the general public to make with the individual is to acquire in fee simple such places as are most desirable and then to hold them perpetually for public use and enjoyment. This is often done by a special enactment, as the National Government has set apart the Yosemite Valley and Yellowstone Park as public possessions forever, while the state of New York has dedicated Niagara to the same purpose. Under another act a group of private persons have rescued Chittenango Falls, in this state, from destruction and vulgarization. Pennsylvania has taken Valley Forge; New Jersey has secured the fine old colonial house and grounds in Morristown once occupied by Washington as headquarters, and Mount Vernon belongs to the women of the United States.

Up to this time, however, the most hopeful effort in this direction has been organized by Massachusetts, where a body has been legally incorporated "for the purpose of acquiring and opening to the public, under suitable regulations, beautiful and historical places on tracts of land within the commonwealth." We have more than once commended this act and the spirit in which the trustees of the people seem to be carrying it out. The corporation can acquire lands of this sort by gift, devise or purchase, and hold them free of taxes so long as the reservation is open to the public. Local historical and scientific societies, village improvement societies and park boards are co-operating in the movement. In most of the states the owner of some remarkable piece of scenery, like the Natural Bridge, could not even give it to the public, much less sell it, for there would be no one entitled to hold it legally. These trustees exist as a continuous body to receive land for public reservation as gifts, and to receive also donations of money to aid them in making the purchase of such places. If a body like this were created in New Jersey it might own and hold forever the Palisades or the battle-field of Monmouth or any other spot which is hallowed by tradition or inspiring by its beauty.

There can be no two opinions as to whether the Palisades are worth preserving. No citizen of New York can contemplate their destruction without sorrow. They are practically a part of one of the noblest harbors in the world. They have been a delight to the eyes of dwellers on Manhattan Island ever since it was New Amsterdam. They are in sight of the city. Parts of them are nearer its centre of population than some of the newly acquired park-land. They add a distinct element to the charm of the great river which flows into New York harbor, and which is the pride of New York state. They are within the boundaries of another commonwealth, but they face New York, and New York has even a greater interest in preserving them than New Jersey. If New Jersey will pass an act which will permit New York to help acquire them, there can be no doubt that money, either by state or city grant or by private subscription, would come from this side of the river to do its full share toward the rescue of the Palisades and the dedication of them forever to the use and enjoyment of the people.

Forest Fires.

SINCE the sweeping fires in our north-western forests startled the country by the devastation and death which they wrought, we have received numerous letters containing plans for preventing such conflagrations, or for arresting them when they are under way, but in none of them do we find any new suggestions. The clearing away of the top and lop now left by the lumbermen to dry into tinder; spark arresters for the smokestacks of the locomotives; broad lanes kept clear of combustible material, and separating the forest into blocks; watch-towers with officers constantly on the lookout; legislation to make the firing of brush a criminal offence, unless it is done under official supervision—all these subjects and many more have been discussed in these columns and elsewhere times without number. Almost every one insists on the enactment of some law, but few recognize the truth that no printed statute has any efficiency until there is a public opinion behind it to compel its enforcement. This public sentiment is a prime necessity, and the only possible good that can come out of such a terrible calamity as these recent fires is that the death and suffering and loss will arouse the people of Minnesota and neighboring states to think seriously, for not till then can they be trusted to act intelligently and firmly.

A short paper by Mr. H. B. Ayres, which will be found in our issue for May 2d of this year, touches the core of the question. The mass of people are not really vicious and evil-disposed, and do not desire wantonly to inflict injury upon their fellows; and if they are instructed by precept and example as to the terrible results of a forest conflagration, and if they are shown how easily it can be kindled, they will not carelessly play with fire in the woods; and the same public opinion which restrains the ordinary citizen from carelessness will prompt him to see that the law against the deliberate and criminal kindling of forest fires is enforced as surely as those against arson or murder. We do not propose to estimate here the fearful sum total of lives lost and property destroyed, or to speak of those profounder losses which will be felt in the future, when soil burned to barrenness will fail to support its normal forest-growth. No arithmetic can estimate the damage which has been done in the last fifty years, and yet we are far from realizing the whole truth. Before another fifty years passes the country will feel the pinch when timber is scarce and the soil is gullied away from the mountain-sides, and our descendants will find that they must repair, by the expenditure of much thought and labor and money during many weary years, what we could have prevented by reasonable precaution.

We have said that law without public opinion is worth little. Indeed, such laws as we already have are rarely enforced. There is a law in Pennsylvania which makes it the duty of the commissioners of each county to appoint persons to ferret out forest-incendiaries, and yet Professor Rothrock asserts that he does not know of an instance in which this statute has been complied with. The newspapers in cities may talk vigorously about enforcing fire laws, but the public opinion which is efficient in this matter must prevail in the neighborhood of the woods themselves and among the men who are directly interested in them. People who live among our forests have seen them burn so often, while no effort was made to ascertain the cause or punish the carelessness or criminality of the incendiary, that they have naturally come to consider forest-property in a class by itself, with no right to protection against fire, like a dwelling-house or other property. Not until these views are radically changed and it is appreciated that a forest-fire, from its possible magnitude, is the worst possible fire, will legislation be of substantial value. What such legislation should be in its essence is well set forth in a circular to lumbermen prepared by Mr. B. E. Fernow, and sent out by the Department of Agriculture. An efficient law will assume that organized machinery must be provided to make it effective, and since the damage done by forest-fires extends beyond mere private and personal loss, the state must be represented by some one empowered to organize a fire service. Responsibility for the execution of the law must rest upon this executive head, and facilities for prosecuting offenders must be at his command. Nothing like any voluntary service can be trusted. Officials must be paid, and must be held responsible for care in performing their duties and obedience to regulations. This point cannot be insisted upon too strongly. Protection against fires will cost money, and this fact must be recognized at the outset. Again, the common interest in the protection of property must be recognized by creating financial liability for its enforcement on the part of the community and its members—that is, each county, for example, must be obliged to pay into the state treasury a certain sum for every acre burned over each year, as a fire indemnity fund, to be applied to the maintenance of the system and for the payment of damages to those whose property has been burned without neglect on their own part.

A law based on such principles is now in force in Maine, and the people of that state are proving that it can be made effective.

Native Trees and Shrubs about Montreal, Canada.—II.

SPIRÆA SALICIFOLIA, the common Meadow-sweet, is abundant. It often seems to differ somewhat in foliage and habit of growth when compared with plants growing wild in southern New England, but it is a very variable plant, and there are numerous known hybrids. S. tomentosa, Hardhack or Steeple Bush, common. Physocarpos (Spiræa) opulifolius, or Nine-bark, grows in stony soils, and especially along streams and borders of islands in the St. Lawrence.

Rubus odoratus, the purple-flowering Raspberry, is often locally called Thimbleberry, while in parts of Vermont and New Hampshire it is known as Mulberry. The fruit is rarely collected and eaten, except incidentally by pedestrians along the roads. R. strigosus, the wild Red Raspberry, is abundant, especially where woods have been cut or burned off. Immense quantities of the fruit are annually brought into the Montreal market from the surrounding country and farther north. It is usually brought in pails holding two or three gallons, but sometimes in rough boxes, and often sells at a very low price. It is used largely in making preserves or jams, vinegar, or "raspberry shrub." R. occidentalis, the Black Raspberry or Thimbleberry, also locally known as Scotch-cap or Black-cap, is plentiful, and the agreeable fruit is much sought for. It grows particularly well on decayed wood, stumps or logs. R. neglectus, a probable hybrid between the last two species, is not very rare. While the stems and foliage partake of the character of R. occidentalis, the fruits are more like those of the Red Raspberry, though not always so large, and they are of very pleasant flavor. Very often a large proportion of the flowers seem infertile. R. villosus, the common Blackberry, is common in some localities, but rarely seems prolific in fruit. R. Canadensis, the Low Blackberry or Dewberry, grows here also, and while the fruit is not often abundant it is sometimes large and sweet. R. hispidus, the Bristly or Swamp Blackberry, is to be found trailing among grass and herbage on low ground.

Rosa blanda is the most common wild Rose in this region. It is a dwarf, comparatively unarmed species, and is the largest-flowered of our eastern American native Roses. R. Carolina blossoms much later and is a much taller plant, found growing about the edges of swamps, ditches and other damp places. R. rubiginosa, the Sweet-brier Rose, or its apparent form, known as R. micrantha, has escaped from cultivation and appears naturalized. It is frequently met with in the Indian Reservation pastures and woods on the south side of the St. Lawrence, opposite the Lachine Rapids, as well as on Montreal Island.

Pyrus Malus, the common cultivated Apple, is to be found apparently naturalized and wild in many parts of the Caughnawaga Indian Reservation, on the south side of the St. Lawrence. It seems to delight in the warm, rocky limestone soil, where it mingles with wild Red Plums, Hawthorns and wild Grapes. The presence of these plants is generally a good indication of fine orchard and vineyard land. P. nigra, Sargent, the P. arbutifolia, var. melanocarpa, Hook., of Gray's *Manual*, is found in damp places.

Hawthorns occur in abundance in this region, the soil and other conditions being apparently well suited to them. The determination of the species is often a puzzling matter, and there seems every reason to believe that the species sometimes hybridize when growing together, resulting in departures from specific types.

Cratægus coccinea, the Scarlet-fruited Hawthorn, is found here, but the variety known as macrantha, Dudley, seems most abundant, and forms extensive thickets in some localities. It may yet be shown that this so-called variety is deserving of specific rank. In the pastures on the south side of the St. Lawrence thousands of these bushes or small trees have been browsed upon annually until they have assumed many odd shapes. Wherever browsed upon the plants become very dense and compact. They would make good hedge-plants if they did not sometimes show a tendency to throw up suckers. C. mollis, also called Scarlet Haw, is fairly common, ripening its very large, handsome, bright scarlet, pleasant-flavored, juicy fruits in the latter part of August, before any other kind. In local lists this species has often passed under the botanical name of the next. C. tomentosa. I have seen what I take to be this species on the south side of the St. Lawrence, near Chateauguay; but specimens were not collected or notes made. C. punctata, the Dotted Thorn, is the most handsome and becomes the largest of all the Hawthorns in this region. It is abundant, and grows as a low, horizontally branched tree, the branches sometimes spreading over a diameter of forty feet, and the short trunks having a circumference of three feet or more. From its peculiar horizontal habit, the tree may generally be identified at some distance. The leaves show considerable variation on different individuals, and the large, nearly round, fruit varies from a dull red to a bright yellow color, sprinkled over with white dots. The flesh is of firm texture, and in the early spring, after the snows have melted, the "haws" may be found fresh and sound among the leaves, and possessing a not unpleasant medlar-like flavor. C. Crus-galli, the Cockspur Thorn, is found growing naturally near the shores of the St. Lawrence, a couple of miles above the mouth of the Chateauguay River. The specimens are very distinct and typical, and this is probably the most northern recorded range of the species.

Arnold Arboretum. *J. G. Jack.*

Foreign Correspondence.

London Letter.

An English Vineyard.—An interesting paper was read at the meeting of the Royal Horticultural Society, last Tuesday, by Mr. Pettigrew, gardener to the Marquis of Bute at Cardiff Castle. It described a vineyard, formed nearly twenty years ago after the French system, on the side of a hill facing south, where the Vines are planted in rows and trained and pruned as in Burgundy. The grapes are used for wine-making, and wine of very good quality is obtained from them, some of it having realized the fancy price of over five pounds per dozen. The cultivation of the Grape-vine in the open air in England for its fruit is so rarely practiced that many people think it impossible. But Mr. Pettigrew has shown that very good fruit can be grown in a field in South Wales, good enough to be eaten as dessert, and if used in the making of wine a profitable enough crop. The record of vintages, however, shows the precariousness of the experiment, unfavorable seasons having seriously affected the yield, which in some years was little or nothing. But in a favorable season, such as that of 1887, the crop was an abundant one, and 3,600 bottles of good wine were obtained from it. The best season of all was last year, when the crop was exceptionally heavy, and yielded 12,000 bottles of wine, which realized three pounds per dozen. The extent of the vineyard is about four acres. The variety of Grape grown is a French one named Gammy Noir. The wine is made on the estate under the superintendence of Mr. Pettigrew.

Foreign Fruit.—The lot of the English grower of fruit for the home market is being made harder, and, as things are now tending, will soon become insupportable. There is no question of the good qualities of much of the imported fruit obtainable in England now, for it is good enough in flavor for ordinary palates, and, as a rule, much cheaper than English-grown fruit can ever be. I bought Californian peaches and pears from a coster's barrow last Saturday which were delicious eating, and about one-third the price of English fruit of the same quality. The consumer generally wants as good an article as he can get at as low a price as possible, the question of its source being to him of little or no import. It is, therefore, of little help to English growers to offer, as the Board of Agriculture now does, to undertake to prosecute any one found selling foreign fruit for English-grown. I was not deterred from buying my peaches and pears by the information, readily supplied by the vender, that they were Californian. I know enough of the cost of producing such fruit in England to be certain that it could not pay if sold anything like so cheaply. As a consumer I welcome the tons of choice fruit now brought from south Africa, Australia, California, etc., but they mean something like starvation for the English growers of such fruit.

The National Dahlia Society's Show is now an annual event of almost as much importance as the great Rose Exhibition. It is held at the Crystal Palace, and invariably attracts great crowds. This year's show took place last week, when the exhibits were unusually numerous. Valuable prizes are competed for by exhibitors, who come from all parts of the country. The great Dahlia fanciers, such as Turner, of Slough; Keynes Williams & Co., of Salisbury; John Walker, of Thame; J. Burrell & Sons, of Cambridge; J. Cheal & Sons, of Crawley, sent large collections of fine blooms, the variety in size, color and form being truly astonishing. The improvement of the Dahlia as a garden-flower has been the direct outcome of the formation of the National Dahlia Society. The work of the breeder and grower among Dahlias is quite as remarkable as anything in horticulture, not even excepting Begonias and Roses.

Phyllocactuses.—While Cactuses generally receive very little attention from English horticulturists, the genus Phyllocactus is rapidly assuming a prominent position among popular plants for the greenhouse. Messrs. J. Veitch & Sons have now a large stock of seedlings and hybrids, many of them of recent origin, and they anticipate an eager demand for them when they are better known. No plants are more easy to manage, and there are not many which flower freer or make a finer display when in flower. There are all shades of color between pure white and crimson, and a considerable range of size from the gigantic variety known as J. T. Peacock, which has flowers nearly a foot across, to the smaller varieties, such as carminata, a seedling with flowers no larger than rose-buds. If planted out-of-doors for the summer and lifted and kept in a dry shed till they begin to show flower, these plants make a magnificent display.

Hedysarum coronarium, the "Sulla" of French, German and Italian agriculturists and the "French honeysuckle" of English gardens, is the subject of a eulogium in the *Gardeners' Chronicle* this week as a fodder-plant for dry countries, the writer, Captain Oliver, having seen it grown with astonishing success in Algeria. He commends it to the notice of English horticulturists as "a fit ornament for bedding purposes," evidently without knowing that it is an

old well-known garden plant with us. At Kew it grows freely in poor soil, the thick herbaceous stems reaching a length of six feet, ramifying freely and bearing pinnate leaves four to six inches long and stout axillary racemes of crimson elongated clover-like heads, suggestive of "Crimson Clover," or "Red Trifolium," to which it is closely allied. It certainly deserves the attention of agriculturists in warm, temperate regions where a quick-growing, juicy fodder-plant is useful, and it is ornamental enough for the garden. It is an annual, ripens seeds freely and comes up readily if sown in spring.

New Plants.—Among the exhibits at the last meeting of the Royal Horticultural Society the following plants were noteworthy:

Cattleya gigas, Countess of Derby: A magnificent variety which fully deserved the first-class certificate awarded to it. The flowers are those of a good form of the type, but the petals and sepals are pure white, and the labellum a gorgeous arrangement of crimson, purple and yellow. It was shown by Mr. T. W. Statter, of Manchester, who possesses a collection of Orchids of exceptional value.

Cypripedium Charles Richman: This hybrid was certificated last year when it was shown by its raiser, Mr. C. Richman, of Trowbridge. It was again put forward this week for a certificate by Monsieur Jules Hye, of Ghent, who had raised it independently from the same parents as produced Mr. Richman's plants, namely, C. bellatulum and C. barbatum. This time it was awarded a first-class certificate. It may be called C. bellatulum, with a tall scape and a dark rose and brown lip, the dorsal sepal being white with purplish veins.

Nepenthes mixta sanguinea: The type is one of the very finest hybrid pitcher plants yet raised, its parents being N. Curtisi and N. Northiana. This new variety, which easily won a first-class certificate, differs in having the pitchers colored blood-red, with large blotches of coppery red, the lid being especially brilliant. It was shown by its raisers, Messrs. J. Veitch & Sons.

Crocosma aurea imperialis.—This is not a new plant, but it deserves the first-class certificate awarded to it if only to bring it into more prominent notice. At Kew it has been grown for some years in a sunny south border, where it forms stems four feet high and bears flowers three inches across, of the richest orange color. It was first distributed by Herr Max Leichtlin about six years ago. It is one of the very best of the hardier Cape bulbous plants.

London. *W. Watson.*

New or Little-known Plants.

Todea barbara.

THE illustration represents a fine specimen of the Square Fern of Australia which has now been in cultivation at the Botanic Garden of McGill University for the past two years. The plant was donated by Baron F. von Mueller, of Melbourne, Australia. Shipped at Easter, 1892, it reached Montreal in excellent condition early the following July, and weighed with its packing-case more than two tons. As soon as placed in position it commenced a vigorous growth, which it has maintained most satisfactorily.

This specimen is one of the few known giants of the species. In his original letter Baron von Mueller stated that the estimated age of the plant was between 250 and 300 years, and that during his forty years of exploration in Australia only nine others had been found. These were all distributed to the various botanical centres of Europe through the liberality of Baron Mueller, and one of the finest of these specimens is to be seen at the Royal Gardens, Kew. Since the reception of the Montreal specimen, another, but smaller one, has been discovered, and last year was forwarded to the Botanic Garden of Harvard University. At the time the photograph was taken, the Montreal specimen had reached a height of about nine feet, with a spread of ten feet.

The genus Todea is interesting as being essentially Australasian, since only one of the four known species extends beyond this limit into southern Africa. The species at present known are T. barbara, Moore (T. Africana, Willd.); T. superba, Col., T. Fraseri, H. & G., and T. hymenophylloides, Rich. & Less.

The Todeas find their north temperate representatives in the genus Osmunda, of which there are three well-known species in this region. Todea is separable from Osmunda by its dorsal fructification, a distinction not regarded as valid by some botanists, since we find that Baron Mueller* combines both genera under the latter name, basing this arrangement upon the character of the sporangium, which is the same in each case.

The general habit of growth of the Todeas is that of the Polypodiaceæ. In T. barbara, the plant body is made up of a number of short, thick stems, about six to nine inches long, which combine to form a quadrangular mass constituting the trunk, the whole rising one foot or more above the ground. The consolidated stem mass increases with age, and in the Montreal specimen is nearly three feet high.

This plant thrives under ordinary greenhouse treatment, and is benefited by watering somewhat freely, especially with water containing a small amount of saline matter.

Baron Mueller writes me that, unlike Gleichenia dicarpa and Lomaria alpina, this plant is not alpine, and although it will readily survive moderate frost, the exact degree of cold which it will endure has never been ascertained. At all events, it should be carefully guarded against severe frosts.

As an addition to large collections, this plant is a most desirable acquisition, and small specimens would doubtless be appreciated in ordinary conservatory collections, although the coarse character of the foliage might tend to exclude it from collections where beauty is a leading consideration.

Botanic Gardens, McGill University. *D. P. Penhallow.*

Plant Notes.

Prunus maritima.—The Beach Plum is a rather common plant all along our eastern coast. It is usually a low bush three or four feet high, often growing on sand dunes, sometimes straggling, but often quite compact. It flourishes, however, on better soil, and in good garden-land makes a neat tree-like plant some six or eight feet high. Just now it bears abundantly purple, and sometimes red, fruits, about as large as grapes, with a soft bloom, and sufficiently conspicuous to make it worthy of mention as a plant with ornamental fruits at this season. These, however, do not constitute its only beauty, because, when properly pruned, it spreads out into a neat and shapely specimen, and although its flowers are not snowy white they are borne in such great numbers that the plant is completely covered. It has the advantage, too, of flowering later than the other members of the family. In many places Beach plums are gathered largely for culinary purposes, and they are, as a rule, of good flavor, although somewhat astringent. No doubt, their good qualities could be improved by selection and, perhaps, by hybridizing, but individual wild plants can be found which really need no improvement. We recently tasted some of these plums, which were a clear amber color, and they could hardly be excelled by any other fruit of the season for richness of quality. No doubt, if such varieties were propagated they could be made profitable as a market fruit, and they are worthy of cultivation for home use. But, apart from this, the ornamental value of the plant is very considerable, and it can be recommended especially to lovers of American plants.

Hydrangea paniculata.—The variety of this plant known as grandiflora has become one of the most common shrubs planted for ornament in this country. Its enormous pani-

*Second Systematic Census of Australian Plants for 1889.

cles of sterile flowers are so conspicuous as to attract the attention of every one, and as it is easily propagated one or more specimens can often be seen on every lawn in a long village street. Under such circumstances the plant grows somewhat tiresome, although, of course, there are many situations where a shrub of such bold aspect is specially useful. The species of which this is a variety is quite different in appearance, since the terminal flowers only of the branches of the long panicles are neutral. These, however, with the perfect flowers, make a long plume-like, leafy inflorescence which is very graceful. It flowers about the same time as the variety grandiflora. Another plant has been sent out as Hydrangea paniculata, and has been considered an early-flowering form of this species. Whether closer investigation will confirm this view or not, the two plants are quite distinct from a horticultural standpoint. This early-flowering form begins to bloom in this vicinity early in July, and lasts for a full month. Indeed, its season of bloom is quite over before the late-flowering form begins to show a flower. Those who plant both these forms will have two months of bloom instead of one.

Boltonia latisquama.—Although this plant was discovered near the mouth of the Kansas River more than thirty years ago by Dr. Parry, who sent it to the Botanic Garden, Cambridge, from which place it was distributed, it is not yet common in cultivation. In their horticultural characteristics the Boltonias, of which there are two other species, resemble our tall Asters, this particular one having large lilac or pink-purple flower-heads an inch and a half in diameter. When properly cultivated it attains a height of six feet, and a mass of it now in bloom on the grounds of N. T. Kidder, Esq., of Milton, Massachusetts, is seven feet in diameter and completely covered with bloom. Even in so large a collection of autumn flowering plants as Mr. Kidder's, this Boltonia is conspicuously beautiful, and it remains in good form for at least seven weeks. To reach its best proportions it must, of course, have room and food, but this is true of all plants of its class. It is a more attractive plant here than Boltonia asteroides, which is rather smaller and bears white flowers. The plant was figured for the first time in vol. v. of Garden and Forest, page 271, and we repeat the statement there made that it is one of the best of the tall perennial herbs which flower at this season.

Clematis graveolens.—This unpretentious, but pretty and attractive, Clematis must still be regarded as an uncommon, or almost rare, plant in American gardens, where C. Jackmanni and other showy types and the native Virgin's Bower are quite familiar. Yet C. graveolens is quite as hardy as any of these, will grow luxuriantly on a trellis, against a wall or in any other suitable place, and will produce flowers during a longer season. It will form stout perennial woody stems which will resist the winter cold without artificial protection, but will do better if some shelter is given. While not a showy species, it stands almost unique among the hardier members of its own genus because of the pale greenish yellow color of its flowers. These are composed of four ovate, pointed, thick sepals, silky hairy on the inner side, and each about three-quarters of an inch or more in length. The anthers appear of a pale yellowish white color as they shed their pollen, and when the stamens and sepals fall away after maturity the remaining pistils become conspicuous with their covering of silky white hair. These pistils develop rapidly and soon form handsome heads of silky-tailed fruits almost as attractive as the flowers, and more conspicuous. The pinnated leaves are of a peculiar bluish or glaucous-green color. This Clematis was originally introduced from very high altitudes in Chinese Tartary, and described as heavy-scented, a term which does not seem to apply to the

Fig. 63.—A specimen plant of Todea barbara.—See page 394.

plants in cultivation, although there is a slight agreeable odor. C. graveolens requires no unusual cultivation except a rich, warm, well-drained soil, and may be propagated by seeds, layers or cuttings. Layers should be partially severed before being covered with soil and should be kept moist. Cuttings may be made of young shoots placed in sand and loam in gentle heat.

Anemone Japonica, Whirlwind.—This is a recent introduction which varies from the well-known white Japanese Anemone, Honorine Joubert, only in having more numerous petals, the extra ones being rather small and irregular. The form, in fact, is similar to the semi-double reddish purple Anemone, which has never met with much appreciation as a garden-plant. The chaste simplicity of the white-flowered Japan Anemone has endeared it to all lovers of fine garden-plants, and it is questionable whether a change in the way of doubling is an improvement or a tendency to be encouraged. No doubt, there are collectors and growers who consider any such variation as a great gain, but we apprehend that the desire for mere freaks and oddities is passing away under the influence of a more refined taste.

Cosmos sulphureus.—A yellow Cosmos, from seed received with those of other New Zealand plants, proves to be a variety, or, possibly, a species, distinct from C. sulphureus, Cav., as figured or shown in an herbarium specimen from Mexico, collected by Pringle, which has solitary heads on long naked peduncles; less finely divided leaves and the entire stem hirsute, pubescent and more rigid. By the way, this specimen has very attractive reddish orange flowers. The variety said to be from New Zealand, flowering in August from spring-sown seed, is an annual with numerous weak, smooth, branching stems. The flowers are borne on short peduncles, are five-petaled and a deep clear yellow in color and one inch to one and a half inches in diameter. Planted out, this Cosmos forms a low-growing attractive plant, useful for a front border.

Cultural Department.

Michaelmas Daisies.

THE hardy Asters at this time are in full flower in every wild field and neglected roadside. Familiarity with these common wild flowers, especially in the eastern states, has often caused their cultivation in the garden to be neglected, and it cannot be said that they are among plants generally cultivated. The determination of the different species has puzzled the botanists for many a year. The artist and the poet have often indicated the sentiment which is felt by the New Englander for these flowers, but the value of good forms in the garden seems to be known only to the hardy-plant fancier. At this time, even in small gardens, they show a distinctness and beauty quite unique, and they are a welcome foil to the prevailing yellow flowers of autumn. In larger plantations they are invaluable, for there the plants have larger scope to prove their effectiveness. On large estates, in a semi-wild park, outside the lawns and cultivated grounds, fine forms of Asters would be very effective at this season, and in public parks they would be attractive and pleasing in the woodlands. There are Asters in Central Park, but many better forms should be grown in the leading park of the country. This leads me to say that while Asters are much alike to careless observers, there is really a wide range of kinds in our American species and their numerous hybrids. In flower they range in coloring from white, pink, rose, red-purple to shades of blue-purple or light lavender. These flowers are sometimes minute stars, but vary in diameter to two inches. The plants are sometimes trailed for a rockery; others, again, stand six or seven feet high. The foliage varies, but is not notable when the plants are in flower. The form or habit of the plants also varies much. Some plants are covered with dense masses of starry flowers, while others are much more branched and open.

One may be quite familiar with the Asters of the field and not have seen this great variation, for even good forms are not often found in the wild state in good condition. They appreciate cultivation in deep, well-manured, somewhat damp soil. Fanciers of hardy plants are well aware how difficult it is to secure correctly named species of Asters. Every nursery seems to be a law unto itself in naming these plants, and I know of no family of which one could buy more species under the same name or in which more names are given to one species. This confusion seems to prevail abroad as well as in this country, or has done so heretofore, though there is prospect of an improvement. The English have always enjoyed these plants thoroughly, and Asters have thriven in their gardens, and many excellent hybrids have been produced. In view of the confusion of names, the Royal Horticultural Society collected all available kinds in their Chiswick garden four or five years ago; they have there been compared and studied by the most competent growers and observers and carefully named. The species have been determined and the garden varieties have been given common English names. It is to be hoped that the Chiswick names will become the standard ones, universally recognized by growers. There are a great number of garden forms, varying to a great or lesser extent, for they hybridize in cultivation as freely as the Columbines, so that constantly varying forms may be expected from seedlings. It is said that a large proportion of Asters in English gardens are crosses between A. lævis and A. Novi-Belgii.

A large garden would be required for all the named Asters, but probably few would care for more than a dozen distinct kinds. I have been interested this season in about three dozen kinds, plants of which were received early in the year. They have been rather crowded, and in the absence of careful cultivation scarcely show their true form. It is not easy to describe the differences, but it may be allowed to name a few distinct kinds. A. cordifolius, var. Elegans (syn. undulatus), has a great number of very small lilac flowers, and is erect and bushy. A. ericoides has linear leaves and small white flowers, very distinct. Of the lævis hybrids, Pygmalion, light lilac, flowered in August; Flora is a darker lilac, while Apollo is more sparingly branched and has larger flowers with few petals. A. Novæ Angliæ præcox is the reddish purple Aster of our fields. The variety known as roseus is a pure rose form of very satisfactory color. Pulchellus is a large-flowered plant, with rather thin curling incurving petals. I saw this plant in a nursery lately labeled roseus. Of the Novi-Belgii hybrids, good lilac forms are Archer Hind, Harpur Crewe and Robert Parker; the latter is especially good. Of the white forms of Novi-Belgii, John Wood and Purity are both excellent. A. puniceus pulcherimus flowered early and was one of the most effective. The plant was much branched, the foliage more prominent than usual, and the flowers a pretty light lilac. A. versicolor Antigone and Themis are small white-flowered kinds, good in a collection, though white-flowered Asters are the least effective of the family—at least, here where the Daisies of spring-time and the wild Carrots of summer are succeeded in equal profusion by the small white Aster vimineus. Our foreign friends sometimes remark on our lack of appreciation for many of our native plants, but some of them are in their true place outside of our gardens, especially autumn-flowering kinds, which, in the broad meadows, make a scene of beauty, beside which our contracted gardens are dull and humble, indeed.

Elizabeth, N. J. *J. N. Gerard.*

Work for the Season.

THE housing of tender plants is an important part of the work of this season. This should not be delayed, for, even if such plants have not been checked by cold, they are liable to injury from the heavy rains that may be expected at this time. The various stock plants that will be needed to supply cuttings for next season's bedding-plants should at once be secured if this has not already been attended to, and it is a good plan to put in a few boxes or pans of cuttings, for these early-rooted plants will furnish an extra supply of cuttings in the spring. Where formal bedding is practiced, such plants as Alternantheras, Feverfew, Coleus, Cotyledons and Kleinia repens will be required, and an abundance of stock plants must be provided for this purpose, excepting in the case of the Feverfew, which is readily obtainable from seed. The proper disposition of these various stock plants is quite a serious question where the greenhouse area is restricted, and a heated pit or frame is a great convenience in such cases. Part of this should be quite shallow, in order to keep Alternantheras and other low-growing plants near to the glass, while the remainder of the pit should be deep enough to accommodate Azaleas, Carnations, Cytisus and other cool-house plants until they are needed to be brought on for conservatory or house decoration. A structure of this character fifty feet long and six feet wide is comparatively inexpensive, and can be heated with one line of pipe around it, and will make room for a quantity of plants, many of which are especially difficult to provide for during the Chrysanthemum season.

Carnations should have been housed before this date; but, to insure health and to enable the plants to hold their foliage at the bottom, it is best to give them a reasonable amount of space, and also to stake them up before the growths fall over. Various wire devices are now to be had for the latter purpose, and one of the most convenient of these is a wire standard to which are attached several adjustable wire rings.

Primulas and Cyclamens that have been grown in a frame during the summer had better be removed to the greenhouse, for they will then be much more under control, and less likely to suffer from an oversupply of water. Chrysanthemums will naturally demand a great deal of space and attention for the next two months, some of the chief points in their care being the disbudding and tying of those intended for exhibition, and their protection against insects, since it is impossible to produce perfect flowers with a companion crop of aphis. To keep down the latter pest it is a good plan to spread tobacco-stems among the plants, and to renew the dose as often as the vapor becomes weak.

The fall crop of bulbs for winter and spring blooming will also come to hand at about this time. Lilium longiflorum and L. Harrisii will be among the first to arrive, and the sooner these are potted and placed in a cold frame the better. My practice has always been to plant the Lilies in their blooming pots at once, rather than to put them in small pots at first, and give them another shift later in the season.

Tulips, Hyacinths and Freesias should also be planted as soon as the bulbs arrive, for a strong root-growth is essential to success with them. Violets seem to have become so subject to fungoid diseases in some localities that many growers have dropped them altogether, but if clean stock can be had to start with it is well worth the additional labor to spray them regularly with some germicide and thus secure a crop of these charming flowers. One of the first requirements for successful Violet culture is plentiful ventilation. The Violet is essentially a fresh-air plant. At this season, too, overwatering should be carefully avoided, although the other extreme is quite as bad, for drought usually results in an attack of red spider.

Holmesburg, Pa. *W. H. Taplin.*

Begonias as Bedding Plants.

THE past summer has given additional proof, if any were needed, of the great value of Begonias in the flower-garden. No bedding plants, except, perhaps, Cannas, have flowered so well or so continuously or have made a display equally striking. In the very hot and dry weather the tuberous-rooted section did admirably. A slight shade, copious watering and an occasional feeding of liquid-manure seemed to suit them to a nicety, and plants raised from seed sown in February gave any number of flowers six inches in diameter. Just now, when the Geraniums look old and bedraggled, as they too often do after heavy rain-storms, the Begonia-beds are as attractive as ever.

I should like to emphasize what was said in a recent number of Garden and Forest as to the value of the variety Vernon of Begonia semperflorens. After two years' experience, I cannot speak too highly of it, and whether growing in a heavily shaded place or in the full sunshine it seems to flower equally well. The plants are smothered with bloom all the season through. In the full sunshine the leaves take on a beautiful bronze hue, while in the shade they retain their dark rich green color.

This year we had a border of Begonias, consisting of many winter-blooming sorts and several ornamental-leaved varieties, the green and the variegated forms being evenly mixed, and the whole was bordered with a row of the tuberous-rooted kinds. The border is shaded from the midday sun, and none of the plants were scorched. Beside an occasional watering and a little topping to keep them shapely they had little care, and yet they made one of the most attractive borders on the place. When lifted with good balls of earth at the root, carefully potted, placed in a shaded house and sprayed for a few days, these make excellent plants for decorative use in winter. None of those which we have lifted have wilted, and hardly a leaf has dropped. So much better plants are secured from those which are set out, that we shall hereafter discontinue the raising of fibrous-rooted Begonias in pots during the summer.

Among the varieties which do specially well and flowered profusely with us are the following: Semperflorens Vernon, Semperflorens alba metallica, maculata, Carrieri, incarnata, Weltoniensis, Gilsonii, Sutton's Perfection, Paul Bruant and Bijou de Gand. Plants of the Rex section are very useful, but they do best in a heavily shaded place. In rock-work they are most effective and make excellent plants to lift at this season for winter use in the conservatory. To have good plants at bedding-out time we insert sections of leaves in the propagating-bed about the end of November, from which we have good stock in four-inch pots in May. When lifted at this season and put in six or eight inch pots they make much finer plants than those which had been grown along in pots all the season.

Taunton, Mass. *W. N. Craig.*

Pansy Seedlings.—It is now the custom among some of the large growers of Pansies to sow their seeds broadcast in the open in August. It is found that great numbers of plants can be grown very economically in this way, and that they are sturdier and stronger than those more tenderly treated in frames. It would seem a rather risky matter to broadcast these expensive seeds in such an August as we have just passed, a season about as dry as ever known here, after weeks of entire absence of rain, yet a few days ago I saw a large plot of sturdy seedlings, numbering many thousands, which were as vigorous as could be desired, and where the germination had been so general that the plants stood rather too thickly. The seed had been sown broadcast on well-prepared ground, which was covered over with a light mulch of short manure after being compacted. As soon as germination was well advanced the mulch was gradually removed and the plants fully exposed.

Elizabeth, N. J. *G.*

Grapes Prematurely Falling.—The grape-growers of Chautauqua County will lose part of the crop this season by what is called "rattling" from the stems. The grapes begin to rattle first from the end of the cluster, and generally the clusters farthest from the main vine are earliest affected. The outer margin of the leaves is commonly found to be dried up. The rattled fruit has an insipid taste. In vineyards on newly plowed sod, and in old-established vineyards, the trouble does not appear so serious as in other places, and in many cases vineyards affected last year are not troubled this season. The grapes rattle on high and on low land, on rich and on poor land, on heavy and on light soils. The cause of the trouble is not known, though it is generally supposed in Chautauqua County to come from a lack of potash in the soil; but while feeding the vines with potash has stopped the rattling in some vineyards, it has not proved a preventive in all cases. Observation seems to show that a faulty nutrition of the vine is at the root of the difficulty, but the conditions which cause this weakness are not satisfactorily determined. There is a possibility that some specific disease is affecting the vines, and its character may yet be discovered.

Cornell University. *G. Harold Powell.*

Correspondence.

Vases for Cut Flowers.

To the Editor of Garden and Forest:

Sir,—The article entitled "Vases for Cut Flowers," in your issue for September 19th, seemed to me to contain many words of wisdom, and the teachings of wisdom—that is, of good taste—are too rarely followed in the current methods of arranging flowers for the drawing-room or the dinner-table. And yet I should like to have space to note one or two passages in which I think your correspondent has omitted to mention important points to be considered in choosing flower-vessels, or has restricted the field of choice within too narrow limits.

In the first place, he almost entirely bars out glass vessels by saying that "All colored glasses are to be rejected, and white or colorless glasses are also objectionable, since, as a rule, flower-stems are unsightly." True, he makes the admission that this rule has exceptions, but, in my judgment, the exceptions are so numerous that the rule should not be laid down. No material for flower-vessels is more beautiful in itself than good glass, for its fragility and the light reflected from its surface give it a delicacy of aspect which accords well with the floral beauty it contains. Moreover, while the stems of many flowers are so unsightly that it is well to conceal them in an opaque vessel, in other cases the stems and lower leaves of cut flowers form an important element of their beauty. A transparent vase, through which the water and inner stems and leaves may be clearly seen, displays a fine group of roses to better advantage than anything else. Indeed, whenever actual ugliness cannot be charged against the lower portions of a cut flower, their revelation of the individual manner of growth of the specimen is generally advantageous. Pure white glass or transparent opalescent glass seems to me an excellent material for flower-vases, and one which should be

more generally employed than it now is; for, in addition to the merits I have named, it is extremely simple and inconspicuous in effect, and this, as your correspondent explains, is a prime merit in vessels whose chief rôle should be to contribute to the beauty of their contents rather than attract attention on their own account.

I think, also, that the judgment against "all colored glass" should be relaxed in favor of dark green glass, at least. No vessels could be more appropriate for receiving flowers of almost every kind than the bowls and vases of old green glass—somewhat mottled in tone, and, therefore, less mechanical in effect than more perfectly manufactured modern glass—which may sometimes be picked up in antiquary shops abroad. And failing these, modern products of English or Bohemian origin may easily be had. In England especially green glasses have in recent years been produced, of such excellent color and in so good a variety of sizes and shapes, that an assortment of them is almost indispensable to any one who has many flowers to arrange indoors, and desires to show them to the best advantage.

As for the "pure neutral gray," which in opaque pottery is commended as preferable to any other color, opinions may differ. Such a tint does not harmonize with blossoms of all colors, or, at least, it does not show them all to the best possible advantage. And, again, it may not associate well with the background against which the vase is to be placed, or the other objects among which it is to stand. And this brings me to what I consider the most serious omission in the article referred to. Its writer does not point out that a vase should be selected with reference to its proposed environment no less than to the character of its contents. A due degree of inconspicuousness is always to be desired; but a gray vase, set, for instance, against a crimson curtain, would be more conspicuous than a red one analogous to the curtain in tone; and thus there may easily be cases when a red, a blue, a yellow, or even an orange-colored vessel is preferable to one of the quietest neutral tint. Imagine a great clump of orange-colored Butterfly-weed in a Japanese bowl of rather lighter tone, set against a yellow curtain, and you will understand that such an arrangement might well seem more harmonious and simple than if the vessel had been of a neutral gray. Opaque green vases, even of quite a bright tint, are often the most harmonious that could be selected, especially if much foliage is used with the flowers. And, in short, it may be said that the required quietness of effect, the required effacement of the vessel as such in favor of its contents, may best be secured, very often, by repeating, in some sort, the color of the blossoms it holds and the dominant color-note in its proposed environment.

Again, is not the dictum that a vase "should be without ornamentation of any kind and of a single and uniform tint of color" a trifle too sweeping? Conspicuous ornamentation, greatly diversified colors, should, of course, be shunned, but one would hardly wish to banish all variety in color, or all use of patterned vessels after having seen a finely shaped vase of Japanese or of old Delft blue-and-white filled with white roses or lilacs or narcissus, or (this time an harmonious contrast, not a concord, being sought) with bold-colored tulips or daffodils, and placed against a blue and white curtain, or on a dinner-table where the plates and dishes are likewise of blue-and-white ware. Surely the eye would be pleased, not offended, by such an arrangement; the beauty and character of the flowers would be enhanced, not hurt. And the test of what is right in matters of taste is the satisfaction of the cultivated eye rather than a close adherence to canons which, however correct in a general sense, must always admit of exceptions while art and beauty are living and perpetually varying things.

With regard to form, I should like to plead for greater freedom of choice. It is not needful that all tall vessels should be broadly flaring at the top. The plain cylindrical form to which objection is made has a true beauty of its own; the oriental races appreciate this fact and do not confine themselves to cylinders of bamboo "which from its irregular surface loses the stiffness of the cylindrical form." This very stiffness may be desirable in a flower-holder, either as justifying the perpendicular lines of certain vigorous flower-stems, or as forming a pleasing contrast to others of a less rigid sort. Nor is it evident that "all forms which bulge below . . . must be rejected." There are no more beautiful oriental vases than some of those in which a spherical lower portion bears a tall, narrow cylindrical upper portion; and these shapes in pottery or in glass are particularly good for the display of two or three blossoms of large size and fine form—for instance, of two or three well-developed hot-house roses.

In a word, while it is sound doctrine that all bizarre shapes and all conspicuous decorations and vivid contrasts of color should be avoided in flower-holders, on the other hand all simple shapes which are good in themselves, all single-toned vessels, even of very vivid hues, and many kinds of patterned vessels, where the designs are as unobtrusive as they are in blue-and-white ware, may be put to excellent service for the reception of cut flowers. Indeed, the greater variety we have to choose from the more likely we shall be to do full justice if we have flowers of many sorts to arrange. But good taste must be exercised in choosing which vessel shall be used for each special purpose; and this means that the color, the size, the habit and the number of the blossoms must in each case be considered, and likewise the particular spot where the filled vessel is to stand.

New York. *M. G. Van Rensselaer.*

Magnolia glauca.

To the Editor of Garden and Forest:

Sir,—Certain trees, which are at home and common on the lowlands of our Atlantic seaboard, reappear along the western slopes of the southern Alleghenies, and the most notable are Ilex opaca and Liquidambar styraciflua. Frequent in eastern Tennessee, they extend as far north as the banks of the Kanahwa and New River, in West Virginia, and perhaps further. It is not surprising, therefore, to have the occurrence of their eastern associate, Magnolia glauca, reported from the same region. Some years ago the late Mr. Leo Lesquereux told me that he had seen it in western Pennsylvania, in Lawrence County, next the Ohio border, and, at my request, wrote the following account of his discovery in a letter dated "Columbus, Ohio, October 21st, 1884." "About Magnolia glauca, seen on the edge of Slippery Rock Creek, above Wurtemberg, I can speak only from impression and remembrance. A group of four or five small trees first caught my view. From the color of the leaves I did not doubt the species was Magnolia glauca. The white under-surface of the leaves is a character easily recognized. But I did not take any specimen with me, for I was then on a tour of geological exploration, with nothing but my note-book and hammer, and stopping at farm-houses for lodging and entertainment. The spot was rendered more interesting to me by the presence in the vicinity of large blocks of sandstone, covered with a moss, Rhabdoweisia denticulata, generally found on the highest mountain-tops, and there, out of place as well as the Magnolia, which I had never seen before in Pennsylvania. It would be very easy to find the locality. Following the bed of the stream from Wurtemberg, near the mouth of the Slippery Rock Creek, in the Conoquenessing, for about three miles, it would not be possible to miss the trees. The bottom of the creek is rough and there is no road on its banks, at least there was none then, and yet I passed along it twice or thrice."

Not being able to visit in person the spot here indicated, I conveyed the information, at sundry times after the receipt of the letter, to persons resident in that part of the state likely to have an interest in the matter, one of whom made search for the trees without success. During the present summer the task was undertaken by my friend, Mr. W. T. Bell, florist, of Franklin, Venango County. Mr. Bell, by persistent effort, had rediscovered, in his own county, Frasera Carolinensis, which was collected there by Dr. Garber in 1869, and, hoping the same good luck in this case, journeyed to Slippery Rock for the express purpose. The directions given were carefully followed up, only to end in disappointment. To explain the failure he suggested that Mr. Lesquereux may have been deceived in his observation. But a naturalist so eminent and so familiar with the leaves and leaf-forms of our forest-trees could not have mistaken anything else for a Magnolia. Another suggestion of Mr. Bell is far more probable. A railroad has been built along the stream, since 1884, and the embankment may have buried the "group of four or five small trees." Instances of the kind are not rare. Fires, cattle and the axe are not the only ravagers of the plant-world.

In Pennsylvania, Ilex opaca ascends the Susquehanna River to Cold Spring, in the mountains of Dauphin County, while Liquidambar styraciflua is confined to a narrow belt along the Delaware, above and below Philadelphia. Neither of them reappears, as far as known, in the state west of the Alleghenies. Magnolia glauca extends inland to a swamp on the summit of a ridge of the South Mountain, near Cornwall, Lebanon County, at an altitude of about five hundred feet. That it will some day be rediscovered west of the Alleghenies is highly probable, and the other two trees may also exist in the same region.

Lafayette College, Easton, Pa. *Thomas C. Porter.*

The Forest.

The Forests of Siberia.

WE have already called attention to the important work upon the forests of Russia published in the fourth volume of *The Industries of Russia*, translated by John Martin Crawford, the United States Consul-General to Russia. In the fifth volume of the same work, which is devoted to "Siberia and the great Siberian Railway," will be found an equally interesting sketch of the forests of Siberia, which are destined to play an important part in the development of northern and central Asia, which, when this railroad is completed, will become one of the great wheat-producing regions of the world, and destined to support an immense population. The composition of the Siberian forest is interesting, too, as bearing on the future timber-supply of the world and as showing that for certain classes of timber, like oak, ash and the best building material, central Asia, if it is ever to become an important seat of population, will have to depend upon the islands of Saghalin and Yezo, and perhaps, too, upon British Columbia and western Washington and Oregon.

The vast forest-resources of Siberia are unequally distributed over its enormous territory. The great forests are situated in the north, while the south is nearly treeless. The whole region may be divided into three zones, each distinguished by characteristic features and situated in a direction from west to east. The zone of what is here called the "northern tall-stemmed woodlands" stretches uninterruptedly from the Ural Mountains to the eastern shores of Kamtchatka; on the north it borders on the tundras, the limit of the growth of the larger vegetation, and on the south it extends to the region suitable for agriculture. It is interrupted by large masses of impassable bogs, and is composed of Pines, Larches and Firs. The deciduous trees are few and insignificant, although Willows and Aspens border the swamps and Birches occur in places. This northern forest occupies all that part of Siberia where agriculture is impossible from the deficient quantity of heat during the five months of vegetative activity. The fixed population is insignificant and the raising of grain sporadic in small patches on its southern border. There are localities, we are told, in this great forest-belt, "where for tens and hundreds of versts in every direction stand clean plantations of Pine, which, with their interlaced summits, hide the sky. The absolutely naked trunks, rising perfectly straight to an enormous height, are so monotonous that a man who once chances into such a part of the Siberian taiga, or even a wild beast, cannot find his way out again. Access to such places is difficult, and the timber contained in them is so far without value, but with the growth of the population, the improvement of roads and the destruction of the forests in the inhabited parts, means will be found to make use of the now remote forest-resources. The scourge of the forests of this zone at the present time is only the forest-fires, not infrequently devastating hundreds of versts. The burned timber is, however, rapidly replaced by young underwood growing up under the influence of natural selection."

The zone of Birch-forest covers the whole of the low-lying or so-called steppe portion of Siberia. This zone is occupied by a settled population and practically coincides with the cultivated or agricultural part of Siberia. The principal and only valuable tree in this region is the Birch, with a slight admixture of Aspens and Willows along the banks of rivers. Coniferous trees are entirely absent. "The Birch thrives on a chernoziom soil, and therefore this zone is the most populated and particularly characteristic of western Siberia, between the middle course of the Tobol and the upper waters of the Obi. This region embraces the so-called steppes of Ishimsk, Akmolinsk, Kurudzhinsk and Barabinsk. Although it is usual to understand by the word steppe an absolutely treeless space, in Siberia, with the exception of the whole Kirghiz steppe region, which produces over large areas shrubs used as fuel in the mining works, all the remaining plains are covered, more or less thickly, with Birch patches or spinnies, giving the locality a very peculiar appearance. These Birch copses, mingling, when viewed at a distance, produce the effect of an unbroken forest. Traversing hundreds and thousands of versts by the western Siberian tract, the traveler sees everywhere on the horizon, as it were, uninterrupted forests. The distribution of Birch patches over the steppe surface may for the most part be called ideal, constituting precisely that combination of wood, arable land and pasture which is everywhere and at all times desirable in the interests of agriculture. Thanks alone to this happy disposition of the forests in this part of Siberia, notwithstanding the not wholly favorable atmospheric conditions and the mediocre soil, crops and grass thrive well."

The forests of the south are confined to the mountain slopes of the ranges which extend in an almost uninterrupted chain, under various names, from one end of Siberia to the other. In this forest Conifers prevail; they yield timber of excellent quality, although often difficult to obtain, being remote from centres of habitation and usually confined to steep inaccessible slopes. These mountain forests, guarding as they do the sources of swift-flowing streams, are extremely important in the economy of the country.

During the last thirty years the Government of Russia has been paying some attention to the care of the forests of western Siberia; in 1863, in the Governments of Tomsk and Tobolsk, temporary regulations were introduced establishing a tax per stump for the use of wood. Preservation of the forest was imposed upon the rural population, who, in return, were allowed to make a free use for their own needs, but not for sale. In 1869 a law was promulgated granting to a corporation the unlimited right of making use of Siberian timber for industrial purposes. Since 1884 the forests of western Siberia have been placed upon the same footing as that by which the Crown forests of European Russia are managed, that is by a paid forest-guard.

In eastern Siberia the inhabitants are still allowed free use of the forest for their needs, and there is as yet no forest control. In the Amur country, where the forests are believed to be extraordinarily varied and valuable, steps have recently been taken toward ascertaining the extent of the Crown forests and for bringing them under state control.

Recent Publications.

Johnson's Dictionary. Revised and enlarged, by C. H. Wright and D. Dewar.

The *Cottage Gardeners' Dictionary*, which was published nearly half a century ago, was enlarged and corrected several times before it was twenty years old. It was revised in 1863, and although several supplements have been issued since that time, this new edition is the result of the first thorough revision which has been attempted in thirty years. The editors are both competent men and they have had every facility for making their work complete and accurate, so that the book is practically a new one as well as a good one. One cannot expect such fullness of detail in one volume as is found in the four volumes of Nicholson's Dictionary, but by careful methods of abbreviation the work has been made very compact, and it contains a surprising amount of matter. The very sharp, clear type which has been used facilitates quick reference, and a great many people, besides gardeners, who have to do with plants and plant names, will find it a useful addition to the working library. Of course, the list of plants is the chief merit of a book of this kind, and unusual care seems to have been taken with the nomenclature, the synonyms being placed in the body of the book, as they should be, instead of being in a separate list. The book, however, contains much besides the names of plants. There are cultural directions, necessarily brief, but always good; descriptions of insects injurious to garden-plants, often with good figures; notes on fungous diseases and their approved

remedies; discussions on various fertilizers and their special values; references to plant-portraits when trustworthy ones can be found; descriptions of garden structures, implements, appliances, methods—in short, it is a comprehensive book of reference in which the selection and exclusion of topics have been made with conscientious and intelligent care.

The book is published in America by Macmillan & Co., New York, and it is well worth the $4.00 for which it is sold.

Notes.

Professor Lloyd, of the Pacific University of Oregon, in a note about the Tree Ipomœas of Mexico, which were described and figured in our issue for September 12th, states that the common name of Ipomœa arborescens in Sonora is Palo blanco, which means the white tree, a name significant of its pale, ghost-like appearance.

A small area has been successfully planted with Licorice in San Joaquin County, California, and the horticultural papers suggest that this industry could be profitably extended. Licorice-roots, to the value of about a million and a half dollars, are imported every year, and in ordinary seasons 20,000 acres of land could furnish this entire product.

If Tomato-plants are covered on nights when frost threatens with a hay-cap, or even a tent of heavy paper, they will escape injury, unless the temperature falls very low. Even loose straw shaken over them will protect them, and since weeks of warm weather often follow the earliest frosts, the season for this fruit can be greatly prolonged by this precaution.

Since the rains in early September the Apple-orchards have undergone a complete transformation. The drought was so long and severe that some of the leaves on the trees and part of the fruit fell to the ground, while that which remained was very small. When the supply of water came the apples began to swell out, and trees which looked on the first of September as if they bore no crop worth picking, are now loaded with an abundance of full-sized and beautifully colored fruit. It is the universal testimony among fruit-growers hereabout that rarely, if ever, have they seen apples increase in size with such rapidity.

An orchard of Keiffer Pears, near Moorestown, New Jersey, containing a thousand trees in a solid block, has never borne even half of a poor crop, while the trees in the middle of the orchard have never borne anything at all. Trees on the outer rows, where the blossoms can be fertilized by bees which visit other varieties of Pears, have borne fruit, but not abundantly. Mr. Isaac Rogers, who makes this statement in the *Farm Journal*, adds that if a hundred Le Conte Pear-trees had been planted with the Keiffer trees the orchard would have paid like a gold mine. Whether this last statement is strictly true or not, it certainly has been amply demonstrated that many varieties of orchard fruits and of small fruits also do much better when other varieties are planted among them, since they are partially, and sometimes almost absolutely, barren unless cross-fertilized.

A marked change of decoration in the windows of flower-stores plainly indicates the coming of autumn. Instead of Sweet Peas and other summer flowers there are now displayed branches with bright-colored autumn foliage or brighter-colored berries, wild Asters and Golden-rod; while in one window large branches of Pokeweed, Phytolacca decandra, with their long racemes of dark purple berries, broad tropical leaves and crimson stems, produce a marked effect. The first Chrysanthemums were shown on Saturday, and fairly good flowers of several of the varieties sent out by Delaux are now for sale. Violets are just coming in, and are not yet at their best. Gaillardias, Gardenias, Bouvardias, Tuberoses, Gladioli, Kniphofias, Cosmos, white China Asters and Dahlias are other flowers most frequently seen, besides the usual stock of Carnations and Roses.

Last year Professor Greene, of the University of Minnesota, undertook some experiments at the request of the State Horticultural Society, to determine why Moore's Early Grape was so shy a bearer, as it was believed by many persons that this variety was more fruitful when furnished with foreign pollen than when dependent on its own. Paper bags were pinned carefully over the branches so as to include half a dozen clusters of these grapes before any of the flowers had opened, so that no pollen of other varieties, whether conveyed by insects or the winds, could reach the flowers. The vines treated in this way set fruit perfectly, showing that Moore's Early has an abundance of pollen to fertilize the stigma under ordinary conditions. The perfect form of its fruit-clusters showed that scarcely a flower failed to produce a well-developed berry. Professor Greene thinks that Grapes, in which the blood of Vitis labrusca enters largely, have, as a rule, sufficient pollen, and that the failure of Moore's Early to fruit is caused by the lack of development of the bud from which the fruiting canes grow each year; and since these so-called fruit-buds are less abundant on this variety than on some others, it is advised in that region to prune this vine less closely than some others. In the same experiment it was shown that the Lindley and Brighton Grapes need to be fertilized with foreign pollen in order to be productive, and, therefore, they should be planted near some of the strong staminate kinds.

Alexander apples are the most costly apples now quoted in the regular market supplies. This large, red-striped fruit has a distinct flavor, and fancy grades bring $3.00 a barrel at wholesale, while large selected apples from Michigan command as much as $1.00 a dozen in the fancy-fruit stores. With the end of the season for peaches in sight, prices have advanced for all grades, and $3.50 a basket is asked for choice lots of Morris White, Rareripe and Stump the World. Farmers in northern New Jersey, who grow late varieties mainly, have already been selling their peaches in the orchards, without sorting, at the rate of $1.50 a basket. Exceptionally large and handsome quinces may now be had as low as seventy-five cents for a basket containing more than a half bushel. Even at such a reasonable price the fruit meets with very slow sale, proving clearly that its delicious flavor when baked and when used with apples for sauce is not generally known and appreciated. California fruit continues plentiful, the finest Tokay grapes of the season being included in forty-eight car-loads received here last week. The season for Mediterranean oranges is ended, and the last cargo of lemons is on the way from Naples. The scarcity of oranges has raised the price of Jamaica fruit to $6.00 a barrel at wholesale, but as new-crop Florida oranges are already in our markets, there will soon be a plentiful supply. Some Florida lemons have also arrived. These lemons will be in more active demand in a few weeks when they are more fully matured and when large lots of inferior fruit from the Mediterranean have been disposed of. Some of these small and poor quality lemons, the late pickings from Mediterranean groves, have brought only five and ten cents a box, while the small supply of choice Sorrento and Majori lemons command from $2.50 to $5.50 a box.

A writer in *The Independent* states that in Georgia Watermelons are planted in hills fourteen feet apart, and from four to six melons are allowed to set on a vine. All these do not mature properly, so that a thousand marketable melons to the acre may be considered a large yield. These will make a car-load if they are of average size—that is, weighing from twenty to twenty-five pounds each. Early in the season the grower may realize $125.00 net for a car-load at the point of shipment, but from this point the price runs down until they are sometimes sold out for the freight. Occasionally a grower will go into the refinements of cultivation and allow a vine to perfect only one fruit of some good variety, the others being removed as soon as they are set. Melons weighing sixty or seventy pounds have been grown this way, and easily marketed at $1.00 each, even when there was a glut of the commoner fruit. The melon most commonly sent north is the handsome variety known as Kolb's Gem, which is a good shipper, owing to its heavy rind, and it is of good quality. Of much finer grain and flavor is the variety known as Rattlesnake, a melon of great length in proportion to its girth at the waist, and curiously and irregularly striped and mottled. In Chattanooga the name of a certain grower was found tagged to every Rattlesnake melon which he had sent, and in an overstocked market, with melons of the same variety selling for almost nothing, those labeled "Dean, Grower," were at once taken up by dealers and consumers at fair prices. There is an obvious moral to this little story. The Rattlesnake melon, having a thin rind, does not endure carriage to northern markets, although it is largely grown in Georgia for home use. When care is taken in packing a car, however, and the bottom courses are laid in such a manner as to break joints and distribute the weight of the top courses, the crushing of the lower ones is measurably avoided, and melons with a tender shell will carry safely. Melons too small to market, or those which are specked or rotted from contact with the ground, are usually fed to the hogs.